Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 25. January, 1923 No. 289

THE SOUTHERN VARIETY OF THELYPTERIS FRAGRANS

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In studying the plants brought back in 1922 from Baffin Land and Labrador by Mr. Donald B. MacMillan, my interest was especially excited by one fern, because of its unusual aspect. Obviously a member of the genus *Thelypteris*, the plant was characterized by its dense habit and rufescent chaffiness. The stiff and coriaceous fronds about 1 dm. long, with short stipes densely clothed with conspicuous cinnamon-colored or reddish scales, are likewise very chaffy on the back of the rachis, and the reddish scales often extend to the backs of the crowded and more or less inrolled pinnae. Upon comparison in the herbarium MacMillan's material proves to be exactly *Thelypteris fragrans* of the Arctic regions, all material from Greenland and northern Labrador to northern Alaska and Siberia being uniform, except that very large fronds reach a length of 2 dm.

This arctic plant is so strikingly unlike the plant of temperate regions which the writer has repeatedly collected, always at low altitudes, and which has anything but an arctic or arctic-alpine range,—dry slaty, shaly or other basic rocks from east-central Newfoundland to New England, New York and Minnesota and reappearing in temperate eastern Asia (Japan, Amur and Manchuria)—that one wonders that the two have so long passed as identical. The more southern plant is naturally larger, and its fronds are nearly if not decidedly membranaceous, with more scattered and longer pinnae and pinnules, but the most striking difference is in the fewer and

smaller scales on the stipe and especially on the back of the frond from which they are often essentially wanting. Careful examination of these scales indicates no specific difference, nor do characters appear in the indusia and spores. The two plants seem, then, to be an arctic and a temperate eastern American and eastern Asiatic variation of one specific type.

In determining which of the two is the nomenclatorial type of the species we fortunately are aided by good descriptions. Linnaeus founded his *Polypodium fragrans* upon the Siberian *Dryopteris Rubum Idaeum spirans* of Amman. The Linnean account[1] is as follows:

32 POLYPODIUM frondibus sub-bipinnatis lanceolatis: foliolis confertis: lobis obtusis serratis stipite paleaceo. *fragrans.*

Dryopteris Rubum Idaeum [misprinted by Linnaeus rubrum idaeum] spirans. *Amm. ruth.* 251.

Habitat in Siberia.

Habitus P. F. Maris, at longe minor. Foliola *densius congesta, lobis lateralibus obtusis, profundius serratis.*

Amman gave a fuller description[2] though without any additional characters, but his paragraph explaining the name and the type locality is worth quoting:

"Ienisae incolae, vt refert Gmelinus hanc plantam cereuisiae incoquunt, quae gratum inde Rubi Idaei odorem et saporem acquirit. Sicca etiam in conclaui asseruata totum conclaue odore suo implet. In Angarae et Selengae fluuiorum montosis prouenit. Tanquam efficacissimum antiscorbuticum Gmelino commendata fuit."

The Angara rises to the northwest of the Baikal Mountains in Siberia and the Selenga enters Lake Baikal from the south. The type region was, then, the mountains of the Baikal region, and material from that area ("*ad Baikalem*") well matches the more arctic extreme. The description by Amman indicates this plant and the briefer one of Linnaeus with its "foliolis confertis" seems conclusive, that true *Thelpteris fragrans* is the more northern extreme.

The southern extreme was clearly recognized by Hooker in 1862, when he described the typical *Nephrodium fragrans*, of "High arctic or subarctic regions," with fronds "destitute of scales above, while the whole of the rest of the plant is richly palaceous with aureo-nitent scales," and set off as Var. "β, slender submembranaceous very sparsely scaly," the plant of "the Caucasus" and of Wisconsin,

[1] L. Sp. Pl. ii. 1089 (1753).
[2] Amman, Stirp. Rar. Imp. Ruth. 174 (1739).

saying "it is remarkable that the only specimens from those regions are what I here consider the var. β."[1] Whether this southern variety actually occurs in the Caucasus seems very doubtful. At least, Boissier clearly states that the record arose through an erroneous label;[2] but the plant of temperate North America and temperate eastern Asia is clearly Hooker's *Nephrodium fragrans*, var. β, and since it is a well marked geographic variety it may appropriately be called:

THELYPTERIS FRAGRANS (L.) Nieuwl., var. **Hookeriana**, n. var., frondibus submembranaceis vel membranaceis 0.7–3 dm. longis 2–5.5 cm. latis subtus sparse vel sparsissime paleaceis; pinnis pinnulisque nec confertis plerumque subremotis.—NEWFOUNDLAND: dry ledges and talus, north bank of Exploits River below the falls, Grand Falls, July 3, 1911, *Fernald, Wiegand, Bartram & Darlington*, no. 4293; dry mossy trap ledges in woods south of Norris Arm, August 11, 1911, *Fernald & Wiegand*, no. 4294; dry cliffs and talus, Tilt Cove, August 22, 1911, *Fernald, Wiegand & Darlington*, no. 4295. QUEBEC: Seven Islands, August 12, 1907, *C. B. Robinson*, no. 879; in clefts of rocks, on mossy cliffs, and sometimes on stony hillsides, River Saguenay, August 15, 1865, *D. A. Watt*; shaded cliffs of the Saguenay River, August 9–14, 1879, *Pringle*; on a cliff in woods, side of Mt. Albert, Gaspé Co., August 2, 1881, *J. A. Allen*, August 8–15, 1905, *Collins & Fernald*; calcareous cliffs, gorge of River Ste. Anne des Monts, August 15, 1906, *Fernald & Collins*, no. 281 (TYPE in Gray Herbarium); dry calcareous ledges and cliffs, between Baldé and the Baie des Chaleurs, Bonaventure River, August 5, 6 and 8, 1904, *Collins, Fernald & Pease*; dry faces of trap cliffs, Tracadigash Mt., Carleton, July 24, 1904, *Collins, Fernald & Pease*; at various stations on dry limestones and slates, Bic, July, 1904 and 1907, *Fernald & Collins*, nos. 837, 838, etc.; slaty ledges along Metapedia River, Assemetquagan, July 29, 1922, *Fernald & Pease*, no. 24,779; shaded dry cliffs (both calcareous and non-calcareous), Mt. Elephantis, Potton, Broome Co., July 7, 1909, *A. S. Pease*, no. 11,953, August 10, 1903, *J. R. Churchill*. NOVA SCOTIA: cliffs along Barrasois River, Cape Breton Island, July 21, 1915, *G. E. Nichols*, no. 1126. MAINE: cliffs by fall, Cascade Brook, Township XVIII, Range 10, Aroostook Co., July 31, 1893, *Fernald*, no. 204; eastern face of cliff at Mt. Kineo, August, 1867, *C. E. Smith*, August 28, 1871, *T. C. Porter*, September 18, 1887, *G. G. Kennedy*; rock cliffs and slides, 2400–2600 ft., Spencer Mt., East Middlesex, August 27, 1907, *J. A. Cushman*, no. 1777. NEW HAMPSHIRE:

[1] Hook. Sp. Fil. iv. 122, 123 (1862).

[2] "*Aspidium fragrans* Sw. species Sibirica schedula erronea in Caucaso ex herb. Vindob. indicatum videtur.''—Boiss. Fl. Orient. v. 737 (1884).

shaded cliff, Gorge of Diamond River, Dartmouth College Grant, August 2, 1914, *A. S. Pease*, no. 16,153; Alpine Cascade, Gorham, 1873, *C. E. Faxon*, September 4, 1903, *Pease*, no. 2530; dryish cliffs, Crystal Cascade, Pinkham Grant, August 7, 1879, *Edwin Faxon*, September 6, 1907, *Pease*, no. 10,715; shaded cliffs, Ice Gulch, Randolph, September 13, 1895, *T. O. Fuller & H. A. Purdie*, August 28, 1901, *Pease*, no. 25; dry ledges, Mine Brook, Shelburne, August 15, 1908, *Pease*, no. 11,664. VERMONT: Mt. Mansfield, August, 1877, *Faxon, Pringle*, and many later collections by others; Smuggler's Notch, *Faxon et al.*; dry sheltered cliffs, Underhill (Nebraska) Notch, *Eggleston et al.*; altitude 1500 ft., Mt. Zion, East Hubbardton, July 17, 1898, *Eggleston & Ross*; rocky cliffs, elevation not over 1000 ft., Mt. Zion, September 1911, *Rugg*. ONTARIO: rocky cut on Canadian Pacific Ry., Franz, June 22, 1921, *Pease*, no. 17,960; crevices of rocks, Red Rock, Lake Superior, June 24, 1884, *J. Macoun*; Isle St. Ignace, 1866, *O.B. Wheeler*. MICHIGAN: Isle Royale, August 19, 1873, *H. Gillman*, August 6, 1909, *W. S. Cooper*, no. 27; among rocks, Keweenaw Co., August, 1888, *Farwell*, no. 557; on cliffs of greenstone trap east of the Cliff Mine, 1863, *J. W. Robbins*; Phoenix, August, 1885, *T. E. Boyce*. WISCONSIN: St. Croix Falls, 1861, *T. J. Hale*; Dells of the Wisconsin, *I. A. Lapham*. MINNESOTA: Basswood Lake, *L. H. Bailey*, no. 430; St. Paul, *Ellen Cathcart*. UPPER AMUR: on shady sloping cliffs, August 18, 1891, *Korshinski*. MIDDLE AMUR: on crags in oak copses, June 5, 1891, *Korshinski*. MANDSHURIA: Amur River, 1855, *R. Maack*. JAPAN: Sapporo, October 19, 1903, *Arimoto*.

GRAY HERBARIUM

PLANTS OF THE HAMILTON INLET AND LAKE MELVILLE REGION, LABRADOR.

R. H. WETMORE.

DURING the summer of 1921, the Canadian Government conducted a Survey in the region of Hamilton Inlet and Lake Melville, Labrador. While on that Survey, during the months of July and August, the writer collected the plants listed below. However, this does not represent an exhaustive study of the flora of the area covered, for the Survey itself was preeminently hydrographical and geological in its intent, hence those elements of the work were stressed accordingly; also the mode of travel of our party—by motor-boat and canoe—was conducive only to botanizing those points at which stops were made.